

Amendments to Claims

Claim 1 (Original). An isolated polynucleotide comprising a nucleotide sequence that encodes a polypeptide comprising an ExtN, a ExtC, and an Int interposed between said ExtN and said ExtC, wherein:

said ExtN is the N-terminal portion of the polypeptide;
said Int is an intein; and
said ExtC is the C-terminal portion of the polypeptide,
and wherein at least a portion of said nucleotide sequence has been modified to contain plant optimized codons.

Claim 2 (Original). An isolated polynucleotide comprising a nucleotide sequence that encodes a fusion polypeptide consisting of an ExtN, a ExtC, and an Int interposed between said ExtN and said ExtC, wherein:

said ExtN is the N-terminal portion of the polypeptide;
said Int is an intein; and
said ExtC is the C-terminal portion of the polypeptide.

Claims 3-5 (Canceled)

Claim 6 (Original). The polynucleotide of Claim 1 or 2 wherein said Int is a naturally split intein consisting of an IntN and an IntC, wherein:

said IntN is the N-terminal portion of said naturally split intein; and
said IntC is the C-terminal portion of said naturally split intein.

Claims 7-57 (Canceled)

Claim 58 (New). The polynucleotide of Claim 6 wherein said IntN comprises both motif A as set for the in SEQ ID NO:77 and motif B as set forth in SEQ ID NO:78.

Claim 59 (New). The polynucleotide of Claim 58 wherein said IntN consists essentially of both motif A as set forth in SEQ ID NO:77 and motif B as set forth in SEQ ID NO:78.

Claim 60 (New). The polynucleotide of Claim 58 or 59 wherein said IntN is about 78 amino acids in length.

Claim 61 (New). The polynucleotide of Claim 6 wherein said IntN is encoded by the nucleotide sequence of SEQ ID NO:71.

Claim 62 (New). The polynucleotide of Claim 6 wherein said IntN has the amino acid sequence of SEQ ID NO:72.

Claim 63 (New). A vector comprising the polynucleotide of any of claims Claim 58 - 62.

Claim 64 (New). A host cell comprising the polynucleotide of any of claims Claim 58 - 62

Claim 65 (New). A transgenic plant comprising the polynucleotide of any of claims Claim 58 - 62

Claim 66 (New). A seed comprising the polynucleotide of any of claims Claim 58 - 62

Claim 67 (New). A method for producing a protein comprising an ExtN and a ExtC, said method comprising:

- (a) obtaining an N-nucleotide sequence that encodes an N-polypeptide comprising an ExtN and an IntN wherein the IntN comprises:
 - i) motif A as set forth in SEQ ID NO:77 and motif B as set forth in SEQ ID NO:78; or
 - ii) the amino acid sequence as set forth in SEQ ID NO:71;
- (b) obtaining a C-nucleotide sequence that encodes a C-polypeptide comprising an IntC and an ExtC;
- (c) transforming a plant host with said N-nucleotide sequence and said C-nucleotide sequence such that said plant produces said protein; and
- (d) optionally recovering said protein.